# Operational Considerations for Community Isolation Centers for COVID-19 in Low-Resource Settings

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## Background

The coronavirus disease 2019 (COVID-19) pandemic has presented numerous challenges to health systems, including large numbers of patients that can overwhelm health facilities and staff. **Community isolation centers (CICs)** can give people experiencing **mild to moderate symptoms** (e.g. fever, fatigue, cough, muscle pain, sore threat, new loss of smell or taste, nasal congestion, shortness of breath or headache) a safe place to voluntarily isolate, while conserving healthcare facility resources.

***Guiding principles:***

- Community isolation centers generally do not care for severely ill patients or those with increased risk for severe disease. These patients should seek care at a health facility or hospital where advanced care, treatment and constant monitoring can be provided. However, in cases where no hospital beds are available, CICs can accept such people when feasible to prevent household transmission that could occur if they stayed home. CICs also support linkage to higher level care.
- People with mild or moderate illness who have been tested and are waiting for their results should isolate at home until they know their status to avoid becoming infected by other patients at a CIC. In cases where safely isolating at home is not possible, people waiting for results may isolate in a CIC.

This document gives operational considerations for CDC country offices, ministries of health, and other partners about establishing and operating CICs for people with suspected or laboratory-confirmed COVID-19. The guidance in this document primarily applies to low-resource settings outside the United States, but it also may be applied in other settings.

## Community Engagement

**Establish community connections** early to supply adequate resources and gain community support that may help ensure operations are sustainable. Arrangements and CIC organization may vary according to the local context. CDC country offices, ministries of health, and partners should set up **community advisory boards** focused on COVID-19 planning and response early. Community advisory boards may include:

- Local, state, provincial, or regional health departments
- Local government and community leaders
- Healthcare workers
- Religious leaders
- Traditional healers
- Emergency management
- Law enforcement
- Nonprofit organizations

***Community advisory boards*** can help

- Identify sites (e.g., schools, stadiums, hotels, gymnasiums, convention centers, other large covered structures) that can be converted to CICs to safely isolate and manage people with mild or moderate cases of COVID-19.
- Draft plans to ensure CICs will be safe and secure, appropriately staffed, and stocked with supplies (bedding, food, water, medical supplies, cleaning and disinfectants, PPE).
- Identify and address challenges or issues in the implementation and use of CICs.
- Make operational decisions based on the local level of community transmission of COVID-19 based on information from local, state, provincial, or regional health departments.

**Considerations when identifying locations for CICs.**

- ✓ Set up fewer, larger CICs, as this will likely be easier to manage than many smaller CICs and require fewer staff members.
- ✓ Establish CICs in rural areas to ensure facilities are close to the communities they serve, so patients' families can help provide support.
- ✓ If no suitable, larger spaces exist, set up multiple, smaller CICs in densely populated settlements and displaced persons camps.

## Establishing a Community Isolation Center

The physical set-up of a CIC takes **time**, **planning**, and **resources** to meet the needs of patients and staff. Consider local context, local health system capacity, and other factors that may keep people from being able to isolate safely at home. Community isolation centers should be set up and operated even when levels of community transmission are low.

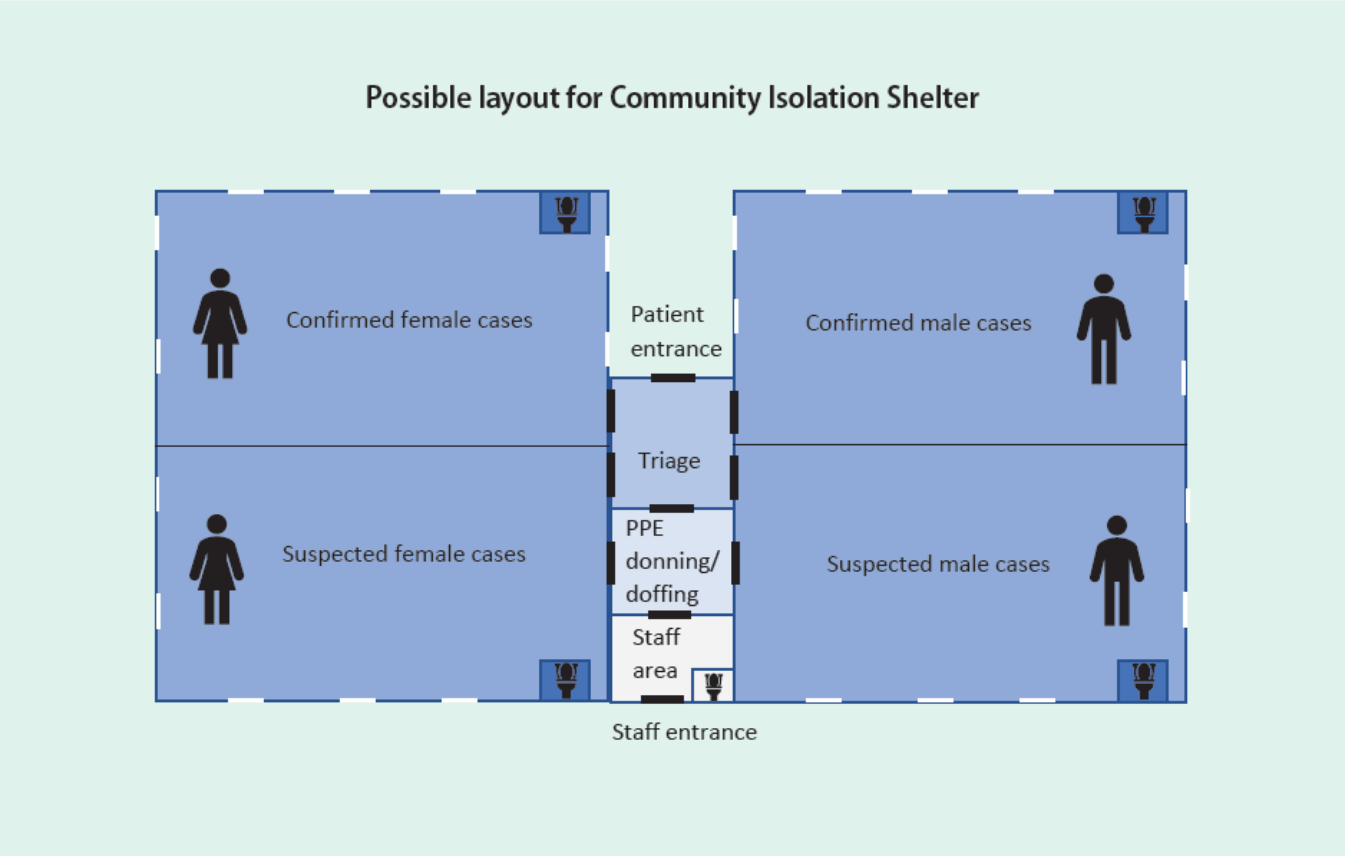
Consider the following when adapting settings for a CIC:

- Consider converting existing hotels, schools, churches, or other structures to CICs.
- Consider using a tent or convert shipping containers to be used as a CIC, if no suitable buildings exist. The size of space needed depends on the size of the community, the CIC, and the number of active COVID-19 cases in the community.
- Locate the CIC next to a COVID-19-designated health facility to simplify patient transfer in case a patient develops severe symptoms. If this is not possible, consider the availability of telemedicine or telehealth as a mobile telephone service.
- Avoid flood areas or areas with a danger of landslides.
- Choose locations with the option to connect to basic services such as water and electricity.

When designing a CIC, create a layout (Figure 1) that reduces the risk of spreading COVID-19 among staff, patients, and visitors. CICs should ensure people with **suspected COVID-19** (either awaiting test results or unable to be tested due to lack of tests) and laboratory-**confirmed cases** are ***placed in separate areas*** and maintain at least 2 meters between themselves and others.

- If confirmed COVID-19 patients come through patient entrance, they should be sent directly to triage.
- If suspected COVID-19 individuals come through staff entrance, they should be sent directly to triage, then donning/doffing.

Figure 1. Possible Layout for a Community Isolation Center




Designate areas for the following purposes:

- Area for intake and patient assessment.
- Area for staff to put on (donning) or take off (doffing) personal protective equipment (PPE) such as masks, gloves, goggles, or gowns.
- Patient care area or rooms with access to patient bathrooms and shower areas.
- Patient care area where staff can monitor patients and document vital signs.
- Clean supply storage area.
- Dirty utility area.

Use physical barriers and markers to protect staff who interact with patients. For example:

- Place an additional table between staff and patients at the reception area.
- Mark the ground with tape to help maintain a distance of at least 2 meters.
- Use clear plastic sheeting to separate areas for staff and patients, allowing staff to monitor patients while conserving PPE.

Consider the following for patient housing areas:

- Assign women and men separate rooms.
- House children and families in private rooms (one per family) or a third room that is only for mixed-gender families, with at least 2 meters of distance between family units.
- In shared spaces, keep mats or beds at least 2 meters apart from people who are not part of the same family.
- If individual rooms are not available, multiple patients can be housed in a large, well-ventilated room.

- If few individual rooms are available, consider placing patients with suspected COVID-19 (i.e., those never tested or waiting on test results) or families in individual rooms.
- Ensure each patient has access to a locked cabinet to ensure security of small personal items. If this is not available, tell patients to send valuables home with a family member.

Consider the following for sanitation and hygiene facilities:

- Provide adequate toilets, hand hygiene, and shower facilities.
- Provide one toilet per 20 patients, with separate facilities for women and men, in addition to a designated staff toilet.
- Provide convenient handwashing facilities close to toilets.
- Maintain routine cleaning and maintenance to ensure that toilets are always clean and functional.

Consider the following for ventilation:

- Increase the introduction of outdoor air when safety and comfort permit.
- Open windows and doors, when weather allows, to increase air flow. Do not open windows and doors if doing so poses a safety or health risk (e.g., risk of falling, triggering asthma symptoms).
- Use fans to increase the effectiveness of open windows.
  - Avoid placing fans in a way that could cause contaminated air to flow directly from one person to another. One helpful strategy is to use a window fan, placed safely and securely in a window, to exhaust room air to the outdoors. This will help draw outdoor air into the room via other open windows and doors without generating strong room air currents.

## Develop a Staffing Plan

Staff are used primarily to ensure the orderly functioning of the CIC and to triage patients. The number of staff will depend on available resources, the size of the facility, and the intended number of patients. A staffing plan for a CIC should include patient care and, where applicable, administrative, cleaning, security, and food preparation staff. Having patient care staff with at least some medical training (e.g., nurses, nursing assistants, or community health workers) on site to assess patients may be beneficial. If care staff are not available, consider training community volunteers.

Staffing plans should include:

- Encouraging staff and healthcare workers to become vaccinated against COVID-19 to reduce the risk of infection or hospitalization from COVID-19 exposure in higher-risk settings.
- At least one person with infection prevention and control (IPC) training who is regularly available to answer questions, listen to concerns, and train staff.
- Monitoring for infectious diseases and providing regular cleaning and disinfection of the facility.
- Having one or two staff members available at the CIC 24 hours per day, 7 days a week, to monitor patient intake, ensure patient safety, and keep unauthorized people from entering the facility.
- Considering children's physical safety and mental and emotional health and hiring staff who have experience dealing with children.
- Employing a full-time security guard, if feasible, to ensure the safety of patients and staff.

Flexible and nonpunitive sick leave policies for staff will ensure people do not work while ill, helping to maintain the health of the overall workforce. Be sure there is a process in place for reporting staff exposure and infections to the authority responsible for operating the CIC and the Ministry of Health. Develop a written protocol or log for identifying, monitoring, and reporting COVID-19 among staff.

All staff must self-assess daily for COVID-19 symptoms. If staff exhibit signs of fever or respiratory symptoms, staff should:

- Remotely report this information to their supervisor.
- Be given an immediate medical assessment and follow-up actions.
- Determine with the supervisor whether they should report to work, depending on whether they are in contact with only confirmed cases, how ill they are, and whether they feel comfortable going to work.
- Develop best practices for monitoring and managing ill and exposed healthcare workers.

## Recommended Supplies for Setting up a CIC

- **Bedding -** Cots, mats, mattresses, etc., depending on what is available. Cover bedding in plastic sheeting or covering to enable easy cleaning and disinfecting between patients.
- **Bed linens -** Depending on the local context, these may be supplied by the CIC, or patients may be asked to bring their own bedding. Consider a plan for laundering these properly between patients. Upon discharge or if linens become soiled, patients may be asked to place linens in a clean laundry bag. Linens should be washed with regular laundry soap and water or machine-washed at 60–90 °C (140–194 °F) with common household detergent and dried thoroughly [1].
    - If staff wash patient bed linens, they should do so wearing gloves and protective clothing (e.g., plastic aprons).
- **Food -** Ensure patients have enough food. This may entail having food prepared at the CIC or having patients' families bring food to the CIC. Food should be dropped off outside the facility and picked up by staff to limit visitors entering the facility.
    - Use disposable food service items, including utensils and dishes.
    - If disposable items are not feasible, ensure non-disposable food service items are handled with gloves and washed with soap and hot water or in a dishwasher, or have patients keep their own dedicated plate and utensil, which they could wash for themselves.
    - Consider having prepackaged boxes or bags for each patient and avoiding self-serve food or drink options.
- **Water -** Supply clean drinking water (25 liters/patient per day) at the facility for cooking, cleaning, bathing, and drinking.
- **Pulse oximetry -** At least one pulse oximetry machine should be available in each facility to monitor patients' blood saturation levels. Pulse oximetry devices need to be cleaned in between use.
- **Oxygen -** All facilities should consider having oxygen cylinders and single-use nasal cannula tubing on site. This is especially important in CICs that are not located near a health facility.
    - The amount of equipment should reflect the needs in the population seeking care at the facility, which may vary based on sociodemographic factors.
    - Ensure sufficient equipment to allow for 5%–10% of patients to use oxygen at any given time.
    - Ensure there is a strategy for maintaining and refilling oxygen cylinders.
    - Monitor patients receiving oxygen therapy every 4–6 hours and document oxygen saturation (SpO2) and respiratory rate (BP).
    - Instruct patients about the safe use of oxygen. Do not allow smoking or lit matches in patient care areas.
- **Automatic blood pressure monitors -** Where possible, consider having 1–2 automatic blood pressure monitors available.
- **PPE** - Ensure medical masks, face shields, goggles, gloves, and gowns or aprons are available for staff and volunteers.
- **Cleaning and Disinfecting -** Ensure an adequate supply of alcohol-based hand sanitizer (with at least 70% alcohol), soap and paper towels, no-touch trash cans, disinfectants, mops, buckets, and other cleaning supplies (e.g., detergent, cloths, spray bottles, gloves).
    - Follow the disinfectant manufacturer's instructions for safety (such as wearing gloves and ensuring adequate ventilation), concentration, and application method for routine cleaning and disinfection.

    - After an initial cleaning with regular soap, detergent, or disinfectant, as appropriate for the surface, perform a second cleaning with regular household disinfectant containing 0.1% sodium hypochlorite (i.e., equivalent to 1000 ppm) [1]. Diluted household bleach solutions may also be used if appropriate for the surface.
        - Check the label to see if your bleach is intended for disinfection and has a sodium hypochlorite concentration of 5%–6%.
        - Ensure the product is not past its expiration date. Unexpired household bleach is effective against coronaviruses when properly diluted.
    - **Follow manufacturer's instructions** for application and proper ventilation. Never mix household bleach with ammonia or any other cleanser.
        - **Leave solution** on the surface for **at least 1 minute.**
        - Bleach solutions will be effective for disinfection up to 24 hours.
        - **Alcohol solutions with at least 70% alcohol may also be used.** For cleaning blood or body fluid spills of 10 ml or more, a concentration of 5% (5,000 ppm) sodium hypochlorite is recommended.
- **Personal hygiene products -** While patients should be expected to bring their own personal supplies for a presumed 14-day stay, a small supply of personal hygiene products (e.g., toothbrushes and sanitary napkins) should be available at the CIC to give to people who do not arrive with such supplies.
- **Masks -** Give a face mask to anyone entering the CIC that does not have one. Masks should not be placed on children under age 2, anyone who has trouble breathing, or anyone who would be unable to remove the mask without help. For more information, see guidance for wearing masks.

## Intake, Referral, and Discharge Considerations

Facilities should develop criteria for determining when patients may be released from the CIC, which should follow local ministry of health guidance. If ministry of health guidance is not available, maintain isolation until 10 days have passed since symptom onset, and fever has resolved for at least 24 hours without fever-reducing medications, and respiratory symptoms (e.g., cough, shortness of breath) are improving.

- Patients with laboratory-confirmed COVID-19 who never developed **any** symptoms (i.e., identified through contact tracing) may discontinue isolation.
- Develop a written protocol or logbook to track numbers of patients admitted and discharged from the facility, and for identifying, monitoring, and reporting COVID-19 among volunteers and staff.
    - Contact information for family members should be collected so they can be notified if a person is transferred, dies, or is ready to go home.

- Develop a written standard operating procedure to guide staff on how and where to transfer patients if symptoms worsen. Record date of transfer or discharge for each person who leaves the facility.
- Develop procedures for caring for children
    - If both a parent and a child are patients, place them together in a family room.
    - If the patient is a child and the parent or guardian is not ill, provide the family with a private room, or place them as far away as possible from other suspected or laboratory-confirmed cases.
    - Depending on the setting, age of the child, parent comfort level, and staffing capacity of the CIC, minor children may be
        - Left without a parent in the care of facility staff.
        - Cared for in the CIC by a designated friend or family member who is also a patient.
        - Cared for by a family member who stays at the CIC to care for the child even though they are not ill.
- Consider home-based care when a child is the only affected member of the household and is unable to be left alone in a CIC or given a private family room.

## Infection and Prevention Control

Infection and prevention controls may reduce the transmission of SARS-CoV-2 at the facility. IPC measures and job-specific IPC training may prevent infections among staff and disease transmission within the facility. Measures may include identification of IPC focal points, education on hand hygiene, proper selection and use of PPE, physical distancing, and avoiding work when sick. Develop procedures for handling people who are present at the facility while their test result is pending. Patients with suspected COVID-19 need to practice physical distancing and be housed separately from confirmed cases, and if possible, from each other, to avoid exposing them to the confirmed cases.

- Provide guidance on cleaning and disinfecting frequently touched surfaces (e.g., chairs, benches, and handrails) to cleaning staff.
- Ensure the safe and correct use and storage of disinfectants, including storing products securely away from children.
- Communicate clearly with staff and clients by providing educational materials about COVID-19 in the local language and posting signs at entrances and in strategic places giving instruction on proper hygiene and respiratory etiquette.

Handwashing stations and protocols for staff, patients, and visitors should be available at the CIC entrance and exit. Hand hygiene should occur upon

  - Entering and exiting the facility and patient care areas.
  - Before putting on PPE and after removing it.
  - When changing gloves.
  - After any contact with a patient with suspected or laboratory-confirmed COVID-19, their waste, or the environment in the patient's immediate surroundings.
  - After contact with any respiratory secretions.
  - Before food preparation and eating.
  - After using the toilet.

- **If using alcohol-based hand rubs, these should contain greater than 60% ethanol or 70% isopropanol.** Hand rub formulations can also be locally manufactured [2]. ***Methanol-based hand rubs should not be used as they are toxic.***

## Medical Management

Community isolation centers should not care for patients with severe disease or multiple comorbidities, thus should not be expected to supply a full range of medications. However, CICs should consider having a supply of pain relievers, fever reducers (paracetamol/acetaminophen, ibuprofen) and oral rehydrating solutions [3]. Patients requiring more advanced medical management should be referred to a healthcare facility.

Develop a medical screening checklist to ensure admitted patients are appropriate for the CIC.

- Screen patients in the CIC for COVID-19 symptoms.
- Patients with mild disease who are at greater risk for severe disease should be isolated in a formal health facility and not a CIC. However, if there are no hospital beds available, patients should isolate in a CIC rather than at home.
- Patients requiring medication should bring enough of any medication they take routinely for a 14-day stay.

Check patients' oxygen saturation levels and respiratory rates on arrival and then twice a day. Patients requiring oxygen may need more frequent assessment (e.g., every 4–6 hours).

- Pulse oximeters might not be accurate when used on people with darker skin [4]. It is therefore important to assess the accuracy of pulse oximeters on the local population before procuring them. Carefully observe patients' signs and symptoms (e.g., trouble breathing, persistent pain or pressure in the chest, new confusion, inability to wake or stay awake, and pale, gray, or blue—depending on skin tone—skin, lips, or nail beds) when assessing, triaging, and managing patients.
- If immediate access to a referral center is not possible, facilities should consider having oxygen tanks available to provide respiratory support in case a patient deteriorates.

If a patient deteriorates, ensure rapid referral to a medical facility. Identify a ***designated medical facility*** to refer patients who may develop more severe illness. Notify the designated facility and personnel when transferring clients.

## References


1. Therapeutic Management | COVID-19 Treatment Guidelines (nih.gov)
2. WHO Hand Rub Formulations-Guide to Local Production
3. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19: interim guidance, 29 July 2020 (who.int)
4. Racial Bias in Pulse Oximetry Measurement